

species, and 11) color photographs of spermathecae and spermatophores by differential-contrast microscopy.

The abundance and clarity of illustrations in this work make it of great potential value to investigators, even those without a precise knowledge of French. The 148 figures are each a composite of from three to 17 individual illustrations. Without undertaking the laborious task of counting the actual number of illustrations, I have made an estimate of 1,170 based on a mean derived from a count of 10 representative figures.

For as long as people study psocids, Lienhard's book will be an important reference, and for many years it will set a standard for systematic work on these insects. My only regret about this book is that it did not come out in hard cover. The heavy paper covers of my copy are starting to show some wear already.—*Edward L. Mockford, Department of Biological Sciences, Illinois State University, Normal, Illinois, 61790-4120.*

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The Butterflies of Papua New Guinea: their systematics and biology.—Michael Parsons, Oct. 1998, Academic Press, San Diego. 736 pp. with 57 text figs., 26 inked and 136 color plates. ISBN 0-12-545555-0 \$275.00

This is a big (8" × 12"), expensive book that comprehensively describes and illustrates the 820 known species of butterflies living in the eastern half of the island of New Guinea. In tackling the butterfly fauna of this remote and poorly-known island, Parsons has undertaken a task never attempted before (except to a more limited extent by himself; Parsons, 1991). The result is not only a guide to the butterflies, but also a substantial book-within-a-book reminiscent of Vane-Wright and Ackery (1989) or Tyler et al. (1994), addressing broad-ranging aspects of biogeography, ecology, systematics and conservation in PNG.

The book is clearly organized and attractively produced, with two columns of text per page and the plates on semi-glazed heavy paper at the back. The contents are organized as follows: Chapter 1 is a brief overview and explanation of the organization of the species accounts (see below). The substance of the book begins with Ch. 2, a 15-page review of the tectonic history of New Guinea, its climate and vegetation. This is followed by a short chapter on global butterfly diversity, with comparisons of generic and specific endemism between New Guinea and surrounding land masses, and a longer chapter focussing on the origins of the New Guinea fauna per se. Parts of the latter are quite general (e. g., explanations for greater diversity in the tropics), and I would have included them in the former.

Chapter 5 is a fascinating history of the early exploration and who's who of subsequent butterfly collectors in PNG, with detailed vignettes about many individuals, including Alfred Stanley Meek, Lucy Evelyn Cheesman, and even the noted lepidopterist Ernst Mayr. One or two inconsistencies were noted, such as the statement on p. 44 that "(i)n 1873, the first British person to see NG was Captain Moresby, who landed on the southern coast of PNG," followed by the statements on p. 45 that "John MacGillivray was naturalist on the survey ship HMS Rattlesnake which visited NG in 1849–50," and that A. R. Wallace likewise visited and collected butterflies in New Guinea, in 1858.

Chapter 6 is a discussion of conservation and commercial issues with particular emphasis on farming and trading in *Ornithoptera* Boisid. specimens, a subject with which Parsons has had extensive experience (e. g., Parsons, 1992). Parsons stresses the importance of the legal insect trade for promoting habitat conservation, educating local people, and reducing the tendency for poaching. Chapter 7, entitled "Aspects of butterfly ecology in PNG," addresses ecological biogeography (issues of local and regional abundance and altitudinal diversity gradients), and life history (adult feeding and mating behavior, parasitism, and myrmecophily). The examples are drawn not only from NG butterflies, but also from taxa such as neotropical *Heliconius* Kluk. Chapter 8 begins with an introduction to the theory of mimicry, and then turns to a discussion of nine mimetic complexes present in PNG. Although there are a few references to illustrations of particular species, it is a pity that none of these complexes is illustrated in a comparative plate (e. g., Vane-Wright and Ackery, 1984, Plate 1c), particularly since several of the models are arctiid, uraniid or agaristine noctuid moths not illustrated in the book.

Chapters 9 and 10 briefly but accurately cover the introductory material on collecting and adult morphology traditional to most butterfly guides. Parsons emphasizes the importance of collecting immature stages in addition to adults, and gives a few useful tips on collecting techniques. There are sensible instructions for genitalia preparations, including the recommendation for preservation in glycerol-filled microvials instead of on slide mounts.

Chapter 11, addresses a variety of theoretical and practical problems in systematics from a somewhat eclectic perspective. For example, Parsons states that all taxa above the species level are "artificial groupings" (p. 117), advocates the occasional description of intrasubspecific forms (p. 119), and offers only two rather dated citations (Griffiths, 1974; Johnson and Quinter, 1982) discussing differences between cladistics, phenetics and evolutionary taxonomy. He discusses the problem of species and subspecies at some length, and evidently subscribes to Mayr's (1940) Biological

Species Concept (although this is never stated explicitly). The chapter's conclusion implies that the cladistic approach, underlain by extensive data and a thorough grounding in natural history, will provide the most robust classification, but that truth in such matters is inevitably elusive (both positions with which I concur).

Descriptions of taxa begin on p. 129, with a synopsis of the diversity, classification, characters and natural history of HesperIIDae. This is followed by similar breakdowns of subfamilies, genera species groups, and species in a standard hierarchical framework, which carries on to cover the other four butterfly families over the next 500 pages. Many useful references to the primary literature are provided, particularly in discussions of higher groups. Species descriptions include references to the holotype (including transcriptions of original labels), brief synonymy, subspecific names of taxa occurring in PNG, quite detailed information on range (or locality data, for rarely-collected taxa), descriptions of adults with reference to the plates and to distinguishing features from similar species, and life history data on immature stages, food plants and behavior, when known. Descriptions of well-studied taxa, such as *Ornithoptera* species, can extend over more than five pages and include distribution maps, although most accounts occupy less than one page.

There are eleven appendices. First is a one-page synonymic gazetteer of place names (too short, in my opinion). Second is an interesting chronological list of collecting localities for five historically important collectors. Third is a summary list of the 305 changes of taxonomic status Parsons has incorporated in the book (more on this topic below). Appendices IV–VIII are lists of genera and species endemic to various areas. Appendix IX is a list of names associated with *Atrophaneura polydorus* (L.), which Parsons evidently deemed too extensive to include in the body of the text. Appendix X is a list of PNG genera indicating recent revisionary efforts by various authors (among these are indicated Parsons' previously published and unpublished taxonomic work on more than 50 genera). Last is a checklist of the 959 species Parsons recognizes to occur on the entire island of New Guinea, with authors, dates and plate numbers for illustrated taxa. All taxonomic references are cited in the extensive bibliography section. There is a short glossary of miscellaneous technical terms, and two separate indices for subjects and taxa.

The plates fall into three groups: line drawings (I–XXVI), pinned adults (1–104), and life-history photographs (105–136). The line drawings are primarily of male terminalia, which include numerous holotype dissections. While generally well-executed, they are crowded, minimally labeled, and probably of limited use to most consumers of this book. The plates of adults are state-of-the-art D'Abbrera-style color images of the left side of most species, illustrated from above and below and placed together in a composite mirror-image. They are clearly labelled, although there is only a general reference to the range of text pages covered by the entire plate, instead of a specific reference to the page where each illustrated species is presented. Plates 105–136 contain 380 photos of various eggs, larvae, pupae and adults on foodplants or in other natural surroundings. They are mostly of very good quality, although some are slightly out of focus. Many seem to have a color distortion that overemphasizes orange hues.

Several things were omitted from the book that I would have found useful. Foremost among these is a good map of the region. There are several schematic maps in the first part of the book illustrating tectonic history, areas of endemism and the

like, but these bear few place-names and are not useful for finding even such frequently-mentioned places as the Bulolo-Wau valley or the Sepik River. Further, it is not clear which museums Parsons has visited during the course of his work, where the specimens illustrated in the plates were collected, and where they are currently housed. The implication of this omission is that Parsons considers the specimens in the plates to be "typical" of their species, a notion at odds with his Mayrian species concept.

A trend I would like to see curtailed (Brower 1996, 1998) is the formal revision of taxonomic nomenclature outside the peer-reviewed periodical literature by what might be referred to as authoritative realists (i. e., authors who feel confident to publish ontological assertions about the taxa they study without making manifest the empirical evidence upon which their claims are based). Although I harbor no doubts about Parsons' taxonomic acumen, it makes me very uncomfortable to see incorporated into this book more than 300 taxonomic changes, distributed among 67 genera across all families. Many of the changes presented are unaccompanied by any discussion or lists of material examined. For example, seven names placed in *Euploea* F. are synonymized under *Euploea stephensii* (C. & R. Felder) within nine lines of text that indicate only the sex and locality data of holotype specimens. A note at the end of the species account states, "In view of the variability and polymorphism of *stephensii*, the synonymy established above is necessary to clarify its phenotypic diversity in PNG." Given that those names survived Ackery and Vane-Wright's comprehensive cladistic revision of the tribe Danaini (1984), the decision to synonymize them in a book whose scope is much broader and necessarily more diffuse than a revisionary monograph's seems perfunctory.

In conclusion, I would like to point out that all my book reviews are critical: I don't believe in churning out flattering cream-puffs to keep myself on the publishers' mailing lists for complementary review copies. However, the particular criticisms enunciated here should by no means be construed to imply that *The Butterflies of Papua New Guinea* is not generally excellent. I believe that Parsons' book will provide museum curators and butterfly enthusiasts alike with a common touchstone for classification and communication for many years to come. The text is well-organized, the coverage comprehensively reflects the state of our current knowledge, and the color plates are superb.—Andrew V. Z. Brower, Dept. of Entomology, Oregon State University, Corvallis OR.

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Hémiptères Lygaeidae Euro-Méditerranéens. Faune de France.—J. Péricart, 1998. France et Régions Limitrophes 84a. Fédération Française des Sociétés de Sciences Naturelles. 57, rue Cuvier, B. P. E.-75232 Paris. (Cedex 05.) 3 Volumes, (paged separately, each over 400 pages). Price 3 volumes 1,400 French francs (=Euro 213,40) + postage.

It is impossible to overemphasize the importance, scope and overall quality of this work. It will certainly remain the standard reference work on the Lygaeidae (sensu lato) of the western Palearctic, including the Near East and the Mediterranean, for many years to come.

Although part of the series of the Fauna of France, the coverage is much more extensive for, in addition to the broad area covered, numerous species whose main distributions are tropical and subtropical Asiatic and African are included.

One can say without hesitation that this extensive three-volume work exemplifies what a faunal study should be. Dr. Péricart, in addition to his own extensive knowledge, has been able to draw upon the voluminous faunistic and biological knowledge that generations of European students, both professional and amateur, have built up over the years. Such detailed information on the distribution, ecological associations and taxonomic relationships of each species can only evoke both admiration and envy when compared with our knowledge of the fauna of any other area of the world, including the Nearctic.

This work is much more than just a fine faunal study. There are many added features, chief among them being the beautiful dorsal view drawings, most by Dr. Péricart himself. These are so finely done that there is the constant feeling that one is actually looking at the insect under the microscope. There are approximately 147 detailed dorsal-view drawings of adults, 59 outline sketches, and 72 detailed dorsal views of the nymphs (larvae), with 28 additional outlines. To give some idea of the scope and number of illustrations the last set of figures in volume three is entitled "Figure 401" but this gives no real idea of the immense number of illustrations actually present. As an example in one modest-sized tribe, the Megalonotini, in addition to the 45 dorsal view illustrations, there are 16 maps, 67 paramere sketches, 29 of the fore femora, 26 genital capsules, 12 scent gland sclerite positions, 11 spermathecae, 5 sperm reservoirs, 5 fore tibiae, 4 eggs, 4 antennae, 3 phalli, 2